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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,281	04/06/2001	E. Neil Lewis	S0001-014002	6341

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EXAMINER
CURTIS, CRAIG

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/828,281	LEWIS et al.
Examiner	**Art Unit**
Craig Curtis	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Nov 12, 2002*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-123* is/are pending in the application.

4a) Of the above, claim(s) *77-123* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-76* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Disposition of the Instant Application

- This Office action is responsive to Applicants' Reply to the Election of Species Requirement mailed to Applicants on 5 September 2002. Said reply was received on 12 November 2002 and made of record in the file (as Paper No. 10) on 18 November 2002.
- In said Reply, Applicants elected without traverse to prosecute Species I (corresponding to Figs. 1-6), with claims 1-76 reading thereon. Thus, in accordance with 37 CFR 1.142(b), claims 77-123 are withdrawn from further consideration by the examiner as being drawn a non-elected invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-14, 16--53, and 55-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis et al. (5,377,003) in view of Richard (4,599,001).

Lewis et al. disclose (with reference to Fig. 6) the invention as claimed--an imaging optical instrument for acquiring images of a sample area, and an optical spectroscopic method, comprising:

a spatial detector (46), including a plurality of aligned detector elements (See Fig. 6),

a variable filter (14) having filter characteristics that vary in at least one direction (filter 14 is taught as being tunable), wherein there is an optical path from the variable filter to the spatial detector (See Fig. 6), wherein said variable filter is both a variable band-pass filter and a continuously variable filter (both inherent w/r/t the functioning of AOTF 14)--EXCEPT FOR an additional teaching wherein said imaging optical instrument further comprises an actuator operatively connected between the variable filter and the spatial detector, operative to move the variable filter relative to the spatial detector along the direction in which the filter characteristics vary.

Richard, however, provides an explicit teaching of an actuator (62 or 64 in Figs. 1, 2, and 4(a)-4(c)) operatively connected between a variable filter (e.g., band-pass filters 42, 44, 46, 48, 50, and 52 in filter trays 38 and 40) and operative to move said variable filter (by separately moving one or more of collectively disposed filters 42, 44, 46, 48, 50, and 52) relative to said spatial detector along the direction in which said filter characteristics vary (inherent). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified, without sacrificing desired performance characteristics, the imaging optical instrument for acquiring images of a sample area of Lewis et al. such that the relatively complicated and costly variable filter taught therein be replaced by the comparatively simple and inexpensive variable filter and actuator taught by Richard, for at least the purpose of significantly reducing both the cost of manufacture and the complexity of operation of said imaging optical instrument for acquiring images of a sample area.

Lewis et al. further teach (See Abstract) wherein said spatial (alt. two-dimensional) detector (46) operates within the ultraviolet, visible, near-infrared (aka infrared) regions of the electromagnetic spectrum (sources of such light being, if not explicitly disclosed by Lewis et al., exceedingly well known in the spectroscopic art, and, arguably, at least implicitly taught by the non-filtered light source (11) in Lewis et al.; moreover, the broadband source (10) in Lewis et al. certainly has the potential of exciting fluorescent emission from a sample or samples at wavelengths longer than that of the source of excitation light, such emission satisfying the claimed sources; and finally, the non-filtered light source (11) is taught as being a laser, and the use of ultraviolet, visible, and infrared (near-, intermediate-, or far-) lasers in spectroscopy is notoriously old and well-known).

The device of the combination explicitly includes the teaching a narrow-band source (light that has passed through one or more of said band-pass filters, narrow-band being a relative term) and wherein said spatial detector and said variable filter are operative on wavelengths outside of the bandwidth of said narrow-band source (explicit in the teaching by Lewis et al. wherein said spatial detector variously operates within the ultraviolet, visible, and near-infrared regions of the electromagnetic spectrum).

Lewis et al. explicitly teach wherein said apparatus of claim 1 further includes logic responsive to the spatial detector to combine a series of images from the spatial detector to obtain spectral images (col. 15, ll. 1-8); wherein logic is responsive to the spatial detector to combine data from a series of image pixels from images acquired by the spatial detector to obtain individual pixel spectra (col. 15, ll. 10-17); and further including, at least implicitly, the step of shifting acquired data on a line-by-line basis as it is being acquired (a routine operation in commercial image processing programs, such as the disclosed BioScan Optimas 3.0

program; it is noted that claim 11 contains a method teaching yet depends from an apparatus claim--actually, an *instrument* claim, since the word "apparatus" is never recited in claim 1).

Lewis et al. also teach wherein said instrument further includes a first stage optic (32) between said sample and said detector, said first stage optic being an image formation optic (See 32 in Fig. 6) that includes a magnifying optic (Id.).

Lewis et al. additionally teach wherein said instrument further includes logic responsive to the detector to selectively display spectral information that relates to at least one predetermined substance in the sample (inherent), as well as common logic operative to control said actuator and cause the detector to acquire an image (See Lewis et al.); further includes multivariate spectral analysis logic responsive to data acquired by said detector (implicit in commercial image processing packages, even BioScan Optimas 3.0).

Lewis et al. further teach the following: wherein said spatial detector is a two-dimensional array detector (See Fig. 6), an integrated semiconductor array detector (Id.); wherein said variable filter is between said sample area and said spatial detector (See Fig. 6); and although the combination does not explicitly teach wherein said variable filter is disposed between said source and said sample area, the placement of said variable filter (e.g., 14 in Fig. 6 of Lewis et al.) is not critical to the functioning of said instrument, and could just as easily (not to mention obviously) have been placed between 10 or 11 and 35, as opposed to being externally disposed with respect to said source and said sample area, as a design expedient in the assembly of said instrument.

With regard to the limitation that recites wherein the spatial detector, the filter, and the actuator are all included in a same transportable instrument, it is presumed that said instrument of the combination is

transportable. And even if such is not the case, providing portability or moveability without producing any new and unexpected result involves only routine skill in the art. In re Lindberg, 93 USPQ (CCPA 1952).

With regard to the limitation wherein the instrument weighs less than 150 kilograms, changes in size and weight are generally recognized as being obvious and within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Lewis et al. explicitly teach wherein the step of combining results in one or more Raman images (See above & claim 5), and wherein the step of combining results in one or more fluorescence images (See above & claim 16).

The combination implicitly, if not explicitly, teaches a step of providing a number of discrete sub-areas in the sample are; and providing a reference substance in a sample area is a common step in the calibration of optical sampling instruments.

The provisioning of providing an array of different samples on a chip is exceedingly well-known in the art of spectroscopic measurement.

With regard to claims 32 and 71, the combination discloses the claimed invention as set forth above EXCEPT FOR an explicit teaching wherein the step of providing sub-areas defines sub-areas with an array of discrete reaction vessels. It would however, have been obvious to extend the sampling method taught by the combination to take into account (i.e., sample) an array of discrete reaction vessels, for at least the purpose of analyzing a greater number of samples in a given time, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

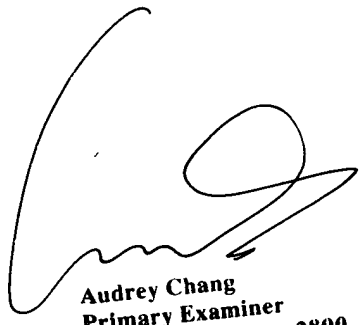
2. Claims 15 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis et al. (5,377,003) in view of Richard (4,599,001), and further in view of Mark et al. (6,120,518).

The combination discloses the claimed invention as set forth above regarding claims 12 and 51 EXCEPT FOR an additional teaching wherein said first stage optic includes portions of an endoscopic probe. Mark et al., however, discloses a first stage optic that includes portions of an endoscopic probe (60 in Fig. 7). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the first stage optic including portions of an endoscopic probe taught by Mark et al. for the first stage optic(s) taught by the combination, for at least the purpose of increasing the versatility of said instrument of the combination.

Contact Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Curtis, whose telephone number is (703) 305-0776. The facsimile phone number for Art Unit 2872 is (703) 308-7721.

Any inquiry of a general nature regarding to status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.



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Craig H. Curtis
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Group Art Unit 2872
24 January 2003